Malaysian Journal of Social Sciences and Humanities (MJSSH), Volume 5, Issue 3, (page 47 - 50), 2020
DOI: https://doi.org/10.47405/mjssh.v5i3.374

Malaysian Journal of Social Sciences and Humanities (MJSSH)

Volume 5, Issue 3, March 2020

e-ISSN : 2504-8562

Journal home page:
www.msocialsciences.com

Practices and Planning of Ministries and Institutions of Technical and Vocational Educational Training (TVET) in Facing the Industrial Revolution 4.0 (IR 4.0)

Mohamad Izzuan Mohd Ishar[1], Wan Muhamad Faiz Wan Derahman[2], Yusri Kamin[1]
[1]School of Education, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia (UTM)
[2]Azman Hashim International Business School, Universiti Teknologi Malaysia (UTM)

Correspondence: Mohamad Izzuan Ishar (izzuanishar1991@yahoo.com)

Abstract

This article is a concept paper on the practice and planning of ministries and educational institutions of technical and vocational training (TVET) in facing the industrial revolution 4.0 (IR 4.0). In line with the changes of the era, all sectors are changing including the technical and vocational education (TVET) sector. This makes the education system meet the demands of the industry in line with industry developments that emphasize the use of technology and cyber-physical systems in carrying out daily activities. The objective of this review is to identify current practices and planning of ministries and institutions of technical vocational education and training (TVET) in the face of IR 4.0. Besides, the education ministry's emphasis on the pillar of technological advancement in learning such as the Internet of things (IoT), cybersecurity, 3D printing, and others helped TVET students apply and prepare themselves for industry change 4.0. The response to TVET lessons has received a positive response among Malaysians as a platform for industry change 4.0. Therefore, all the planning and practices in TVET lessons will give the graduate more focus on improving the quality of the job market.

Keywords: Technical Vocational Education & Training (TVET), Industrial Revolusion (IR) 4.0, education, quality of job

Introduction

The Industrial Revolution has brought a major change to the world driven by advanced technology (Department of Labor, 2018). It started with steam and water-based technology until the era of the use of a physical-cyber system. The emergence of this system has completely influenced the new capabilities of humans, machines, and technological methods. Advances in artificial intelligence (AI), 3D printing, genetics, robotics, and so forth have made the technology seamlessly integrate a smarter system. It has given new challenges to all sectors of Malaysia that need to be in line with digital transformation to remain competitive. As a result, the field of work also undergoes drastic changes depending on the technological, socio-economic, and policy changes of a country. According to the Policy and Strategic Planning Division of the Department of Labor (2018), the outcome of the changes brought about by this revolution has invited challenges that require proactive adaptation by industry, government, and individuals. As the entire industry makes adjustments, most jobs will also be transformed. In this situation, there will be jobs that are affected and there are areas that will develop indirectly requiring different skills. According to Sheila Rani (2017), industry revolution 4.0 is thought

Malaysian Journal of Social Sciences and Humanities (MJSSH), Volume 5, Issue 3, (page 47 - 50), 2020
DOI: https://doi.org/10.47405/mjssh.v5i3.374

to solve the problem of dependence on energy resources that indirectly changes the future of the world of work.

Objective

To identify current practices and planning of ministries and institutions of technical vocational education and training (TVET) in facing the IR 4.0

Issues Addressed in Facing the IR 4.0

The industry expects difficulty in finding candidates who have problem-solving skills and strategic thinking, innovation and creativity, as well as technical knowledge. In addition, according to Mohd Noor (2017), Malaysia will be shocked by the loss of some traditional jobs in certain fields as it is replaced by smart technologies and applications in its quest to address the issue of unemployment. Therefore, to ensure inclusive development in this industry 4.0 revolution, the government and industry should work together through retraining and upgrading of the existing workforce to address the potential risks in the new field. Because robotics and automation technologies are expected to reduce the workforce especially in jobs that involve repetitive, manual work and do not require high skills, policymakers, academics, and the industry are among those involved to ensure equality. IR 4.0 would result in reduced job opportunities or new job opportunities (World Economic Forum, 2016). The Department of Labor (2018) under the Ministry of Human Resources Malaysia stated that this issue made technical knowledge, teamwork, and communication necessary to be emphasized in order to ensure that the employment opportunities provided were in line with the IR 4.0 demands.

Current Practices and Planning of Ministries and TVET Institutions in Facing the IR 4.0

Rometty (2016) points out that the new jobs that will emerge in the industry revolution 4.0 also play a new role in specific areas such as cybersecurity, data science, and others covering specific positions. Indirectly, traditional job opportunities will be replaced by new jobs to meet current demands such as smart application developers, program engineers, and technology experts. This requires that the individuals involved need to adapt to the rapid changes in technology and be able to meet the needs of the automation and robotics era. The relationship between the industry and the institution of TVET is becoming more and more important because of the job requirements that need to be nurtured at the school level which will place this career between professional and skill-based. Collaboration from industry will bridge the gap between educational institutions and the world of work.

In addition to the Ministry of Human Resources, the Ministry of Education Malaysia has also taken drastic steps to empower TVET by developing a new policy that is more relevant in implementing the TVET agenda in line with industry needs aiming at revisiting issues within the TVET as a whole and devising new strategies for empowering the TVET. This is in line with current demand in the Malaysian job market that emphasizes skilled workforce rather than academic aspects in line with the IR 4.0 (Education Policy Planning and Research Division, 2019). According to the former Minister of Education, Dr. Maszlee Malik (2019), the review of national education policy is to improve the curriculum and education system at all levels of educational institutions in an effort to equip students who are ready for the challenging and challenging future of TVET to support the IR 4.0. Since 2017, according to Francisco Marmolejo, the World Bank's Higher Education Specialist has stated that Malaysia has taken a more concrete step and has shown continued commitment to implementing a new education development plan in line with the IR 4.0. According to Francisco, more flexible educational institutions are needed in preparation for the new challenges so that society is not marginalized in this globalized and digital age.

The Malaysian government targets 35 percent of skilled workers by 2020 and by 2050, Malaysia will

Malaysian Journal of Social Sciences and Humanities (MJSSH), Volume 5, Issue 3, (page 47 - 50), 2020
DOI: https://doi.org/10.47405/mjssh.v5i3.374

be part of the top 20 countries in the world as part of its efforts to increase the percentage of skilled workers to continue the country's economic development and development activities (Ministry of Human Resources, 2017). As the revolution unfolds, the application of various technologies in the industry is being implemented that will enable students from skills education institutions to learn and explore new skills and knowledge such as AI, the Internet of Things (IoT), and others so that they can remain relevant to industry needs. In this regard, former Minister of Human Resources, Dato 'Sri Dr. Richard Riot noted that TVET has an important role in the field of skills education towards developing a highly-skilled workforce. As such, TVET has been given priority in the 11th Malaysia Plan where Malaysia targets 60 percent of new jobs by 2020 as jobs based on TVET skills. As such, TVET has become a major pillar of education and training in line with national needs. In 2018, there has been an increase in the quality of vocational education by 5.64 percent comprising 15 354 First Year Vocational College (KV) students, 459 Secondary Vocational Education Program (PVMA) students, 23 Vocational Basic Education Program (PAV) students, and 2 635 students in the Higher Secondary Industry Approval Program have enrolled in 116 Secondary and 8 Secondary Schools of Special Education (Ministry of Education, 2018).

In addition, according to the Ministry of Education's Annual Report 2018 through the Malaysian Education Development Plan 2013-2025, the two KVs have established Public-Private Partnerships (PPPs) aimed at transferring technology from the industry to meet the needs of the IR 4.0. Private sector involvement enhances the image of KV as an institution that supplies the professional workforce and ensures that the TVET system remains competitive and meets market needs. Meanwhile, the Vocational Technical Education and Training Division took the approach by coordinating Written Learning Materials (WIM) for all KVs and Secondary Schools, negotiating with the Skills Development Department for all students to be certified, and improving strategic collaboration with the industry to enhance learning and teaching at KV and High School. In 2019, TVET will focus more on graduate recruitment through curriculum enhancements, facilities and equipment upgrades, and increased professionalism of educators. It aims to bring relevant and accepted graduates into the domestic and international industry. In addition, PPP partnerships have also been extended to enhance the marketability of graduates and upgrade their skills institutions to the Center of Industry Excellence. The Ministry of Communications and Multimedia through its Minister, Gobind Singh Deo (2019) is also working with the ministries involved in producing graduates who are able to meet the challenges of the IR 4.0 by devising a special module to integrate technology into existing subjects aimed at creating relevant workforce and practical in the digital age of vocational skills education institutions in Malaysia. The cooperation of all these responsible parties has always provided an opportunity and opportunity in realizing the national agenda in helping TVET to remain ready for IR 4.0.

Conclusion

In conclusion, various actions have been taken by several ministries and educational institutions in Malaysia to ensure that TVETs are implemented as well as time and technology changes in line with the Industrial Revolution 4.0. After some literature review did on this issue, the actions and planning of the parties involved are still very early in the process and require more concerted practice and cooperation from various parties. Governments and public or private education institutions still need the cooperation of industry and private companies to strengthen their needs from various angles such as technology transfer and development, finance and sponsorship, provision of skilled educators and so on. As such, the practices and planning adopted by Government and TVET institutions in the wake of the Industrial Revolution 4.0 still require more detailed scrutiny and procedures by those who are authorized to act. Further studies are still needed to ensure the readiness and knowledge of TVET students and staff of the ministry in the face of significant technological change.

Malaysian Journal of Social Sciences and Humanities (MJSSH), Volume 5, Issue 3, (page 47 - 50), 2020
DOI: https://doi.org/10.47405/mjssh.v5i3.374

References

Berita Harian (2019). *Guru Perlu Bersedia Tempuh Cabaran Revolusi Industri.* 13 Mei 2019. Laporan BERNAMA.

Berita Harian (2019). *Jawatankuasa Pemerkasaan TVET Diterajui Menteri Pendidikan*. 13 Mei 2019. Bahagian Perancangan dan Penyelidikan Dasar Pendidikan. Bilangan 3 (Mei-Jun 2019).

Berita Harian (2019). *Laporan Penuh JKD Dibentangkan Kepada Perdana Menteri*. 10 Jun 2019. Bahagian Perancangan dan Penyelidikan Dasar Pendidikan. Bilangan 3 (Mei-Jun 2019).

C. Sheila Rani (2017). *Celik Industri 4.0*. 11 September 2017. Penulisan dalam Utusan Malaysia.

Laporan Tahunan Kementerian Pendidikan Malayia (2018). *Bab 1: Meningkatkan Akses Kepada Pendidikan Berkualiti Daripada Pendidikan Prasekolah Hingga Menengah.* Pelan Pembangunan Pendidikan Malaysia 2013-2025.

Media Baharu (2019). *Revolusi Industri 4.0: KKMM Sedia Bekerjasama dengan Kolej Vokasional Lahir Graduan Berkemahiran*. 11 Jun 2019. Berita Radio Televisyen Malaysia.

Mohd Noor Omar (2017). *Cabaran Revolusi Industri 4.0*. Institut Kefahaman Islam Malaysia. 6 November 2017. Penulisan dalam Utusan Malaysia.

MyLabour Observer (2018). *Di Ambang Revolusi Industri 4.0*. Bahagian Dasar dan Perancangan Strategik. Januari 2018. Jabatan Tenaga Kerja Semenanjung Malaysia.

Shahrul Nizam Sannusi (2018). *Revolusi Industri 4.0*. MENTARI. Bilangan 3 (November 2018).

Ucapan Majlis Konvokesyen Ke-22 Institut Latihan Perindustrian 2017. Buletin KSM. Bilangan 2 (2017).